

Environmental Public Health Indicators

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Environmental Public Health Indicators

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I. Introduction to the Environmental Public health Indicators Project

Environmental public health indicators (EPHIs) can be used to assess our health status or risk as it relates to our environment. They may be used to assess baseline status and trends, track program goals and objectives, and build core surveillance capacity in state and local agencies. The best indicators are those that reliably predict the relationship between human health and the environment, are routinely collected, and have well accepted definitions and data collection standards.

Indicators provide information about a population's health status with respect to environmental factors and may be particularly useful when clear measurable links are not available. As such, they can measure health or a factor associated with health in a specific population. For example, because the amount of lead in paint in older homes is difficult to measure, we use blood lead measurements in children to indicate both the lead paint hazard and the risk for childhood lead poisoning. Similarly, we measure microbial contamination in the water to indicate the risk for gastrointestinal illness.

There are few diseases for which clear environmental etiologies have been established. Environmental health assessment efforts therefore need information not only for the diseases that are environmentally related, but also for potential environmental hazards and exposures that pose a risk to human health.

To address this gap in our understanding of environmentally related diseases, the Council of State and Territorial Epidemiologists and CDC identified specific areas and indicators that should be evaluated. The future evaluations of these indicators should consider how well the indicator predicts human health and/or environmental conditions and data availability. In addition, the evaluators should also consider how best to standardize data collection and define the indicators. We believe that the development of a common set of reliable indicators for tracking environmental exposures and adverse health effects could then be used by state programs to focus on priority surveillance systems and better monitor the health status of their communities.

The national application of these proposed indicators could allow states to connect their work with that of other states and provide a tool for regional assessment of the issues that cross state boundaries.

II. Description of the Environmental Public Health Indicators Project

Project Goal: Identify indicators of environmental hazards and health effects that a state health department can use to develop a comprehensive environmental public health program.

Objectives

- Incorporate noninfectious diseases into a national public health surveillance system.
- Identify program and policy needs.
- Bridge the gap between environmental protection and public health data and programs.

Proposed Uses

- 1) Enable surveillance of status and trends to
 - prevent known or suspected adverse public health events associated with environmental exposures,
 - detect new adverse health events associated with environmental exposures, and
 - provide efficient and consistent reporting mechanism(s).
- 2) Track program goals and objectives
 - aid in program and policy development, planning, and evaluation and support existing programs;
 - guide research initiatives; and
 - develop new program initiatives.
- 3) Build core environmental public health capacity with other agencies to provide services, programs, and research that help to sustain health.

Conceptual Framework

The organization of an indicator system is helpful for identifying types of indicators and the relation between types. Our indicators are organized into a Hazard -Exposure-Health Effect-Intervention structure, based on concepts from Thacker et al, which describes hazard, exposure, and outcome surveillance for environmental public health. [Thacker SB, Stroup DF, Parrish RG, Anderson HA. Surveillance in Environmental Public Health: Issues, Systems, and Sources. Am J Public Health 1996;86(5):633-8.] We adapted structural components and concepts from the Organisation for Economic Co-operation and Development=s Pressure-State-Response model for indicators of sustainable development and from the World Health Organization=s model, which identifies driving forces, pressures, states, exposures, effects, and actions for indicators of environmental protection and public health.

II. Description of the Environmental Public Health Indicators Project

Definitions

Environmental public health: Environmental public health focuses on the interrelations between people and their environment, promotes human health and well-being, and fosters a safe and healthful environment.

An **indicator** identifies and communicates a system's status. An **environmental public health indicator (EPHI)** provides information about a population's health status with respect to environmental factors. It can be used to assess health or a factor associated with health (i.e., risk factor, intervention) in a specified population through direct or indirect measures.

Topic of indicator: An indicator topic is a broad category under which indicators are organized. EPHI topics are based on Healthy People 2010 but the organizational structures of public health and environmental health programs were considered. As a result, topics may include pathways or sources (e.g., air, water), agents (e.g., lead, pesticides), or events (e.g., disasters, sentinel events) and may also overlap because of the complexity of environmental and public health laws and programs. An indicator, however, is generally included under only one topic, although it may be relevant to several.

Type of indicator: The type of an indicator describes how the indicator “fits” within the EPHI framework. An indicator will be categorized as a hazard, exposure, health effect, or intervention.

Hazard indicators: Conditions or activities that identify the potential for exposure to a contaminant or hazardous condition.

Exposure indicators: Biologic markers in tissue or fluid that identify the presence of a substance or combination of substances that could harm an individual.

Health effect indicators: Diseases or conditions that identify an adverse effect from exposure to a known or suspected environmental hazard.

Intervention indicator: Programs or official policies that minimize or prevent an environmental hazard, exposure, or health effect.

Tiers of indicators and their measures: The tier suggests the importance of the indicator and its measure with respect to policy or program considerations. Tiers include core, optional, and developmental measures. The initial assignment of an indicator may be subject to change as technologies or knowledge about the indicator change.

Core: A core indicator or measure may be included in a state health department's basic environmental public health surveillance program. Measurements for these indicators may be available or could be made readily available. An indicator in the core tier must have at least one core measure and can have optional and developmental measures as well. Core indicators, endorsed in 2001 by the Council of State and Territorial Epidemiologists, have been identified for state health department use.

II. Description of the Environmental Public Health Indicators Project

Optional: An optional indicator or measure may be part of a basic environmental public health program for some states, depending on individual needs, priorities, and data availability. An indicator in the optional tier must have at least one optional measure but can also have developmental measures. When a core measure is identified, the indicator will change from optional to core.

Developmental: A developmental indicator or measure is one that may have environmental public health relevance, but the measurements either have not yet been established or pose significant interpretation challenges. An indicator in the developmental tier can have only developmental measures. If optional or core measures are identified, the indicator will be reclassified.

Attributes of an Ideal Indicator

- Measurable
- Trackable over time
- Based on demonstrated links between environment and health
- Useful and understood by diverse populations
- Informative to the public and to responsible agencies
- Tied to public health objectives
- Action-oriented
- Incorporated in clear-case definitions

Criteria for Nominating, Selecting, and Ranking Indicators

- 1) Classify the link between the proposed indicator and the public health issue, with preference given to direct measures.
- 2) Determine the public health effect of using the proposed indicator.
- 3) Evaluate the feasibility of the proposed indicator by using the following criteria:
 - measurability,
 - ability to be monitored over time,
 - accessibility at different levels (e.g. state, county, municipality),
 - accuracy (reliability, validity),
 - sensitivity to changes in underlying factors, and
 - timeliness
- 4) Assess the ability to incorporate the proposed indicator into public health interventions and environmental regulations.
- 5) Assign a tier on the basis of scientific validity, public health relevance, public concern, feasibility, public health capacity (resource needs), and the degree to which public health action can reduce exposures.

II. Description of the Environmental Public Health Indicators Project

Workgroups and Tasks

1) CDC/NCEH Workgroup

- Developed a conceptual framework and definitions.
- Determined the attributes of an ideal indicator.
- Established criteria to nominate, select, and rank indicators.
- Collaborated with the CSTE to create a steering committee.
- Staffed the steering committee and external workgroups.

2) CDC/CSTE Steering Committee

- Nominated environmental public health indicators.
- Offered an EPHI workshop for state public health epidemiologists.
- Recruited members for workgroups.

3) CDC/CSTE Workgroups

- Agreed upon a list of environmental public health topics and indicators.
- Identified measures and potential data sources for indicators.
- Determined tiers of the indicators and their measures.

III. Using Environmental Public Health Indicators for Surveillance

The environmental public health indicators (EPHI) framework was designed to be need-based to assist the states in meeting Healthy People 2010 objectives and provides a foundation for developing environmental public health surveillance (EPHS) (i.e., environmental public health tracking). The indicators are general to allow states flexibility to choose specific measures on the basis of individual needs and priorities. Measures for any given indicator can change over time as technologies improve and epidemiologic studies enhance understanding of the relation between environmental factors and human health. Indicator-based surveillance, especially if conducted across many states, will help guide this epidemiologic research by providing adequate information for hypothesis generation.

The application of the EPHI framework can guide development of surveillance activities in a way that connects indicators to one another and to those used by other states. This framework of indicators drives data collection, but data collection also can drive the selection and use of indicators by a particular state. The indicators may be used for decision-making, policy-making, or program development. Using the EPHI framework may help connect state health departments across the nation so that EPHS programs do not continue to develop around a particular hazard or disease, but rather in a more comprehensive manner.

Using the EPHI framework

- 1) Select indicator topic(s) relevant to your state.
- 2) Within the selected topic(s), choose relevant indicators.
- 3) For each indicator selected, identify the measure(s) of interest.
- 4) For core indicators and measures, use the standard definitions and measurement criteria identified in the technical supplement. If your state uses different standards or criteria, or none are identified in the technical supplement, identify the standards and criteria used or proposed by your state.
- 5) Identify data sources from which data are used.
 - a) Evaluate the usefulness of the identified data sources.
 - b) Identify required data elements.
 - c) When connecting data for hazards, exposures, health outcomes, and interventions, identify areas in which standards and specifications for automating differ from those provided by the National Electronic Data Surveillance System (NEDSS). If yours is a new system, develop standards and specifications that are consistent with NEDSS.
 - d) Identify data or surveillance systems that need to be stored or made available electronically.
 - e) Identify data sources that are useful to public health but restricted from use.
- 6) Identify additional data collection needs for bridging data gaps for the selected indicators. If the suggested measures are not useful, recommend alternative measures.
- 7) Summarize data collected for the selected measures to describe the state of environmental public health in your state.
 - a) Identify and rank the hazards, exposures, and health effects by level of concern.
 - b) Determine whether the data answer questions about the usefulness of public health programs and interventions.
 - c) If multiple years of data are available, evaluate trends among selected measures.

IV. Summary of Core Environmental Public Health Indicators

Topics	Lead (Pb)	Sun and Ultraviolet Light
Air, Ambient (Outdoor)	Noise	Toxics and Waste
Air, Indoor	Pesticides	Water, Ambient
Disasters	Sentinel Events	Water, Drinking

Hazard Indicators (potential for exposure to contaminants or hazardous conditions)

Criteria pollutants in ambient air
 Hazardous or toxic substances released in ambient air
 Residence in non-attainment areas (for criteria air pollutants)
 Motor vehicle emissions
 Tobacco smoke in homes with children
 Residence in a flood plain
 Pesticide use and patterns of use
 Residual pesticide or toxic contaminants in foods
 Ultraviolet light
 Chemical spills
 Monitored contaminants in ambient and drinking water
 Point-source discharges into ambient water
 Contaminants in shellfish and sport and commercial fish

Exposure Indicator (biomarkers of exposure)

Blood lead level (in children)

Health Effect Indicators (occurrence of morbidity or mortality attributed to exposure)

Carbon monoxide poisoning
 Deaths attributed to extremes in ambient temperature
 Lead poisoning (in children)
 Noise-induced hearing loss (non-occupational)
 Pesticide-related poisoning and illness
 Illness or condition with suspected or confirmed environmental contribution (a case or an unusual pattern)
 Melanoma
 Possible child poisoning (resulting in consultation or emergency department visit)
 Outbreaks attributed to fish and shellfish
 Outbreaks attributed to ambient or drinking water contaminants

Intervention Indicators (programs or official policies addressing environmental hazards)

Programs that address motor vehicle emissions
 Alternate fuel use in registered motor vehicles
 Availability of mass transit
 Policies that address indoor air hazards in schools
 Laws pertaining to smoke-free indoor air
 Indoor air inspections
 Emergency preparedness, response, and mitigation training programs, plans, and protocols
 Compliance with pesticide application standards (among pesticide workers)
 Activity restrictions in ambient water (health-based)
 Implementation of sanitary surveys
 Compliance with operation and maintenance standards for drinking water systems
 Boil-water advisories

V. Measures and Data Sources for Environmental Public Health Indicators

Air, Ambient (Outdoor)

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Criteria pollutants in ambient air (<i>core</i>)	1) Annual high levels of criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO ₂), ozone (O ₃), PM ₁₀ , sulfur dioxide (SO ₂) (<i>core</i>) 2) Tons of criteria pollutants released in ambient air (<i>core</i>)	EPA: National Air Quality and Emissions Trends Report; NMMAPS, NTI; NEI; Urban Air Toxics Program; TRI/EPCRA; AIRS States or local jurisdictions: environmental protection agencies, especially those with indicator projects; Urban Air Toxics Programs
Hazardous or toxic substances in ambient air (<i>core</i>)	1) Tons of one or more hazardous or toxic substances released in ambient air (<i>core</i>) 2) Number of reports of noncompliance for emissions releases (<i>developmental</i>)	ATSDR: HSEES EPA: National Air Quality and Emissions Trends Report; NMMAPS, NTI; NEI; TRI/EPCRA; AIRS NOAA (NWS) States or local jurisdictions: environmental protection agencies, especially those with indicator projects; Urban Air Toxics Programs
Motor vehicle emissions (<i>core</i>)	1) Vehicle miles driven per capita (<i>core</i>) 2) Average fuel efficiency of registered motor vehicles (<i>optional</i>)	CB: census data DOE (EIA) DOT, FHA: NPTS
Residence in non-attainment areas (<i>core</i>)	1) Percentage of human population residing in non-attainment areas (for criteria air pollutants) (<i>core</i>)	CB: census data EPA: National Air Quality and Emissions Trends Report, NMMAPS
Exposures		
(None identified)		
Health Effects		
Unusual pattern of asthma events (<i>core</i>)	1) Number of asthma-related deaths (<i>core</i>) 2) Incidence of asthma (<i>core</i>) 3) Rates of hospitalization and emergency department visits for acute asthma events (<i>core</i>) 4) Number of work days missed because of asthma (<i>optional</i>) 5) Number of school days missed because of asthma (<i>optional</i>) 6) Proportion of population filling prescriptions for asthma medication (<i>developmental</i>)	CDC: NHAMCS, NHDS, NVSS States or local jurisdictions: CDI surveillance; ME/Cs; vital statistics
Unusual pattern of cardiovascular or respiratory events (<i>core</i>)	1) Incidence of cardiovascular and respiratory events (<i>core</i>) 2) Rates of hospitalization and emergency department visits for acute cardiovascular and respiratory events (<i>core</i>)	CDC: NHAMCS, NHDS, NVSS States or local jurisdictions: CDI surveillance; vital statistics

V. Measures and Data Sources for Environmental Public Health Indicators

Air, Ambient (Outdoor)

Interventions		
<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Programs that address motor vehicle emissions (<i>core</i>)	1) Proportion of population residing in jurisdictions that have vehicle emissions mandates (<i>core</i>) 2) Number of public education messages to encourage the use of personal transportation alternatives (e.g., “ozone action day”) (<i>optional</i>)	CB: census data DOT (FHA): NPTS States or local jurisdictions: environmental protection and transportation agencies, especially those with indicator projects
Alternate fuel use in registered motor vehicles (<i>core</i>)	1) Proportion of registered vehicles powered by alternative fuel (<i>core</i>)	DOE (EIA) States or local jurisdictions: transportation agencies
Availability of mass transit (<i>core</i>)	1) Proportion of population for whom mass transit is available (<i>core</i>) 2) Proportion of population who chose personal transportation alternatives (e.g., walking, bicycling) (<i>optional</i>)	CB: census data CDC: BRFSS; NHIS DOT (FHA): National Bicycle and Walking Study; NPTS States or local jurisdictions: CDI surveillance; transportation agencies
Programs that address hazardous or toxic substances in ambient air (<i>optional</i>)	1) Number of jurisdictions that have air toxics monitoring programs (<i>optional</i>) 2) Number of operating permits for releases of hazardous air pollutants (<i>optional</i>) 3) Number of fines for hazardous releases violations (<i>optional</i>)	EPA States or local jurisdictions: environmental protection agencies

V. Measures and Data Sources for Environmental Public Health Indicators

Air, Indoor

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Tobacco smoke in homes with children (<i>core</i>)	1) Proportion of children residing in households with adult smokers (<i>core</i>) 2) Proportion of households with adult smokers (<i>core</i>) 3) Proportion of children who smoke (<i>optional</i>)	CB: census data CDC: BRFSS; NHIS; YRBSS EPA American Legacy Foundation States or local jurisdictions: CDI surveillance; environmental protection agencies, especially those with indicator projects
Hazardous or toxic substances in indoor air (<i>optional</i>)	1) Proportion of houses with group I dust mite in beds (<i>optional</i>) 2) Proportion of houses with >0.1 unit/g German cockroach dust in beds (<i>optional</i>) 3) Proportion of schools with indoor air hazards (<i>developmental</i>)	CDC HUD: National Survey of Lead and Allergens in Housing NIEHS
Exposures		
(None identified)		
Health Effects		
CO poisoning (not fire-related) (<i>core</i>)	1) Number of deaths from CO poisoning (<i>core</i>) 2) Number of hospitalizations and emergency department visits attributed to CO exposure (<i>core</i>)	CDC: NHAMCS; NHDS; NVSS States or local jurisdictions: injury and CDI surveillance; hospital discharge data; ME/Cs; vital statistics
Unusual pattern of respiratory events (<i>optional</i>)	1) Number of emergency department visits in which an air-borne agent is suspected (<i>optional</i>) 2) Number of deaths in which an air-borne agent is suspected (<i>optional</i>)	CDC: NHAMCS; NHDS; NVSS States or local jurisdictions: CDI surveillance; ME/Cs; vital statistics
Interventions		
Policies that address indoor air hazards in schools (<i>core</i>)	1) Proportion of schools with indoor air policies (<i>core</i>) 2) Proportion of schools with smoke-free and tobacco-free policies (<i>core</i>)	CDC: NHIS; SHPPS; YRBSS EPA States or local jurisdictions: CDI surveillance; STATE
Laws pertaining to smoke-free indoor air (<i>core</i>)	1) Number of jurisdictions with laws on smoke-free indoor air (<i>core</i>) 2) Proportion of resident population in jurisdictions with laws pertaining to smoke-free indoor air (<i>core</i>)	CB: census data CDC, NIOSH States or local jurisdictions: STATE; health agencies, occupational safety and health divisions
Indoor air inspections (<i>core</i>)	1) Number of complaint-related indoor air inspections (<i>core</i>)	CDC (NIOSH) OSHA
Use of best practices for protecting indoor air (<i>optional</i>)	1) Number of local jurisdictions with ordinances requiring CO detectors in apartment buildings (<i>optional</i>) 2) Proportion of non-manufacturing work force that occupies office buildings for which indoor air quality management practices address human health (<i>optional</i>) 3) Proportion of resident population for which programs are available for testing radon in high-risk homes (<i>optional</i>)	CDC: NHIS, NIOSH surveillance systems EPA OSHA: health agencies, occupational safety and health divisions States or local jurisdictions: health agencies, occupational safety and health divisions; local OSHA; STATE

V. Measures and Data Sources for Environmental Public Health Indicators

Disasters

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Residence in a flood plain (<i>core</i>)	1) Proportion of resident population with homes in a flood plain (<i>core</i>)	CB: census data FEMA USGS
Geographic or climatic conditions that increase susceptibility to hazards (<i>optional</i>)	1) Number of days in which temperatures exceed safe thresholds (<i>optional</i>) 2) Amount of excessive rainfall (<i>optional</i>) 3) Duration of drought conditions (<i>developmental</i>) 4) Number of days of flooding (<i>developmental</i>) 5) Number of floods in areas with high concentrations of pesticide through production, sales, or use (<i>developmental</i>)	FEMA NOAA USDA USGS States or local jurisdictions: agriculture and environmental protection agencies, especially those with indicator projects
Residence in a temporary or unsafe structure (<i>optional</i>)	1) Proportion of population residing in damaged or destroyed home (<i>optional</i>) 2) Proportion of population residing in temporary shelter (<i>optional</i>)	ARC CB: census data CDC FEMA States or local jurisdictions
Exposures		
(None identified)		
Health Effects		
Deaths attributed to extremes in ambient temperature (<i>core</i>)	1) Number of heat-attributed deaths (<i>core</i>) 2) Number of deaths from hypothermia (<i>optional</i>)	ARC CDC: NHAMCS; NHDS; NVSS EPA: NMMAPS NOAA (NWS, NCDC, NSSL): States or local jurisdictions: ME/Cs; vital statistics
Morbidity and mortality attributed to natural forces (<i>optional</i>)	1) Number of illnesses or injuries from natural disasters by type of disaster (<i>optional</i>) 2) Number of deaths from natural disasters by type of disaster (<i>optional</i>)	ARC CDC: NHAMCS; NHDS; NVSS EPA: NMMAPS NOAA (NWS, NCDC, NSSL) States or local jurisdictions: ME/Cs; vital statistics
Intervention		
Emergency preparedness, response, and mitigation training programs, plans, and protocols (<i>core</i>)	1) Proportion of jurisdictions for which multi-institutional exercises to prepare for disaster response are conducted annually (<i>core</i>) 2) Proportion of jurisdictions for which there protocols exist for public education messages to elicit preventive behaviors among resident population (<i>optional</i>) 3) Proportion of jurisdictions for which early warning systems are in place (<i>optional</i>) 4) Proportion of jurisdictions for which sheltering programs exist (<i>optional</i>) 5) Proportion of jurisdictions for which safe building codes are enforced (<i>optional</i>)	CDC (NCEH) FEMA NOAA (NWS, NCDC, NSSL) States or local jurisdictions: health and public safety agencies; local FEMA

V. Measures and Data Sources for Environmental Public Health Indicators

Lead

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Lead contamination in the environment (<i>optional</i>)	1) Proportion of housing stock built before 1950 (<i>optional</i>) 2) Lead levels in sediment and in game or commercial fish (<i>optional</i>)	CB HUD States or local jurisdictions: environmental protection agencies, especially those with indicator projects
Residence near metal processing industries (<i>developmental</i>)	1) Proportion of population residing near lead smelters (<i>developmental</i>)	CB HUD
Exposure		
Blood lead level (in children) (<i>core</i>)	1) Proportion of high-risk children with elevated blood lead level (<i>core</i>)	CDC: NHANES; Lead Surveillance Program States or local jurisdictions: prevalence surveys
Health Effect		
Lead poisoning (in children) (<i>core</i>)	1) Number of hospitalizations from lead poisoning in children (<i>core</i>)	CDC: NHAMCS; NHDS States or local jurisdictions: hospital discharge surveys
Intervention		
Lead elimination programs (<i>optional</i>)	1) Number of jurisdictions with lead training and certification programs (<i>optional</i>) 2) Proportion of population living in pre-1950 housing that has been tested for the presence of lead-based paint (<i>optional</i>) 3) Number of completed lead abatements (<i>developmental</i>)	CB CDC: NHIS EPA HUD States or local jurisdictions Private sector: industry monitoring systems

V. Measures and Data Sources for Environmental Public Health Indicators

Noise

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazard		
Residence in noisy environments (<i>optional</i>)	1) Number of noise complaints (<i>optional</i>) 2) Level of noise monitored in a community (<i>optional</i>)	States or local jurisdictions: police, sheriff offices
Exposures		
(None identified)		
Health Effect		
Noise-induced hearing loss (non-occupational) (<i>core</i>)	1) Proportion of noise-exposed adults with hearing loss (<i>core</i>) 2) Proportion of children and adolescents with hearing loss (<i>optional</i>)	CDC: BRFSS; NHANES; NHIS; YRBS DOD (Recruiting Offices) States or local jurisdictions: prevalence surveys from health agencies, schools
Intervention		
Hearing protection practices (<i>optional</i>)	1) Proportion of population using appropriate ear protection devices and equipment (<i>optional</i>) 2) Number of jurisdictions with noise ordinances and prohibitions on specific activities (<i>optional</i>)	CDC: NHIS OSHA

V. Measures and Data Sources for Environmental Public Health Indicators

Pesticides

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Pesticide use and patterns of use (<i>core</i>)	1) Annual tons used (<i>core</i>) 2) Pounds applied (<i>core</i>) 3) Patterns of use in agriculture, home, and garden (<i>optional</i>) 4) Number of worker and community complaints about possible pesticide exposure (<i>developmental</i>)	EPA (OPP, Health Effects Division) USDA (PDP): USGS (NAWQA, NASQAN) States or local jurisdictions: monitoring and reporting systems; environmental protection agencies, especially those with indicator projects; local USGS Offices
Residual pesticide in foods (<i>core</i>)	1) Proportion of foods with residual pesticide levels that fail to meet safe consumption regulations and guidelines (<i>core</i>)	EPA USDA (FDA): Total Dietary Survey
Exposure		
Biologic markers of pesticides or pesticide metabolites in human tissue (<i>optional</i>)	1) 95 th percentile blood and urine concentration levels for biomarkers of exposure to carbaryl (1-naphthol), methyl parathion and parathion (paranitrophenol), chlorpyrifos (3,5,6-trichloro-2-pyridinol), propoxur (isopropoxyphenol), 2,4-D, o-phenylphenol, permethrins, diazinon, chlordane, dieldrin, DDT, lindane (<i>optional</i>) 2) 95 th percentile urine concentration level for six biomarkers of exposure to 28 pesticides: dimethyl phosphate, dimethyl thiophosphate, dimethyl dithiophosphate, diethyl phosphate, diethyl thiophosphate, diethyl dithiophosphate (<i>optional</i>)	CDC: NHANES; NRHEEC States or local jurisdictions: survey data from human exposure capacity-building projects
Health Effect		
Pesticide-related poisoning and illness (<i>core</i>)	1) Incidence of pesticide-related poisonings and illnesses in pesticide workers (<i>core</i>) 2) Number of non-occupational pesticide-related poisoning and illness (<i>core</i>) 3) Number of pesticide-related poisoning and illness in children (<i>core</i>)	AAPCC: TESS CDC: NHDS; SENSOR/NIOSH surveillance systems; NVSS; terrorism surveillance States or local jurisdictions: injury indicators surveillance; ME/Cs; pesticide poisoning surveillance programs; terrorism surveillance

V. Measures and Data Sources for Environmental Public Health Indicators

Pesticides

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Interventions		
Compliance with pesticide application standards (<i>core</i>)	1) Proportion of workers, handlers, and trainers in compliance with employee training standards (<i>core</i>) 2) Proportion of workers in compliance with recommendations for home and yard use (<i>developmental</i>)	CDC: NHIS EPA OSHA USDA States or local jurisdictions: pesticide programs within agriculture, environment, and health agencies
Public and professional education (<i>optional</i>)	1) Public awareness campaigns about pesticide hazards and safe application and use (<i>optional</i>) 2) Public and professional education about symptoms of low-level pesticide exposure (<i>optional</i>)	EPA OSHA USDA States or local jurisdictions: pesticide programs in agriculture, environment, and health agencies
Alternatives to pesticide use (<i>developmental</i>)	1) Number of jurisdictions in which “organic” foods are available (<i>developmental</i>) 2) Consumption patterns of “organically grown” foods (<i>developmental</i>)	EPA OSHA USDA States or local jurisdictions: pesticide programs in agriculture, health, and environmental agencies, especially those with indicator projects

V. Measures and Data Sources for Environmental Public Health Indicators

Sentinel Events

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazard		
Unsafe or unhealthy environmental event or condition (<i>optional</i>)	1) Chemical spill (<i>core</i>) 2) Ambient ozone concentration that exceeds the safe level (<i>optional</i>) 3) Ambient temperature that exceeds safe threshold (<i>optional</i>) 4) Disaster (e.g., natural, sociopolitical) (<i>optional</i>)	ATSDR DOT EPA NOAA, NWS States or local jurisdictions: environmental protection agencies, especially those with indicator projects USGS
Exposures		
(None identified)		
Health Effects		
Illness or condition with suspected or confirmed environmental exposure (<i>core</i>)	1) Asthma-related death (<i>core</i>) 2) Case of methemoglobinemia (<i>core</i>) 3) Illness attributed to ambient or drinking water contaminants (<i>core</i>) 4) CO poisoning (not fire-related) (<i>core</i>) 5) Hospitalization from lead poisoning in a child (<i>core</i>) 6) Consultation or emergency department visit for possible poisoning in a child, including lead poisoning (<i>core</i>) 7) Pesticide-related poisoning or illness (<i>core</i>) 8) Temperature-attributed death (<i>core</i>) 9) Food-borne illness (<i>optional</i>)	AAPCC: TESS CDC: BRFSS; Food Net; Pulse Net; NHAMCS; NHDS; NHIS; NVSS CDC, ARC EPA: NMMAPS HCFA: Medicare; Medicaid NOAA (NCDC; NWS; NSSL) States or local jurisdictions: asthma, CDI and injury indicator surveillance; ambulatory care and hospital discharge data; ME/Cs; vital statistics Private sector: HMOs, medical insurers
Unusual pattern of illness or condition with suspected or confirmed environmental contribution (<i>core</i>)	1) Rates of acute asthma events (<i>core</i>) 2) Rates of cardiovascular and respiratory events in persons with underlying disease on days when outdoor air standards are exceeded or when temperatures are at dangerous levels (<i>core</i>) 3) Cancer incidence and mortality rates, specifically lung cancer in non-smokers, mesothelioma, soft tissue sarcoma, and melanoma (<i>optional</i>) 4) Incidence rates for adverse reproductive outcomes, specifically low and very low birth weight and pre-term and very pre-term births (<i>optional</i>) 5) Incidence rates of developmental disabilities, specifically mental retardation and autism spectrum disorder (<i>optional</i>) 6) Incidence rates of birth defects, especially cerebral palsy (<i>optional</i>) 7) Syndromes with unknown etiologies that require emergency medical care or cause death (<i>developmental</i>)	CDC: MACDP; MADDSP; NBDPN; NVSS HCFA: Medicare; Medicaid States or local jurisdictions: asthma surveillance programs; cancer registries; CDI surveillance; hospital discharge surveys; ME/Cs; vital statistics Private sector: HMOs, medical insurance companies; health care databases, especially emergency department visits
Intervention		
Use of surveillance and warning system (<i>optional</i>)	1) Number of surveillance systems for sentinel events, syndromes, and unusual patterns of disease that include environmental data (<i>optional</i>) 2) Number of vector-control programs that use environmental data (<i>optional</i>)	CDC States or local jurisdictions: health, environmental protection, and natural resources agencies

V. Measures and Data Sources for Environmental Public Health Indicators

Sun and Ultraviolet Light

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazard		
Ultraviolet (UV) light (<i>core</i>)	1) Number of days in which the UV light index exceeds a safe threshold (<i>core</i>)	EPA NOAA (NWS) States or local jurisdictions: environmental protection agencies, especially those with indicator projects
Exposures		
(None identified)		
Health Effects		
Melanoma (<i>core</i>)	1) Incidence of melanoma (<i>core</i>) 2) Melanoma mortality (<i>core</i>)	CDC: NHDS, NVSS States or local jurisdictions: cancer registries; CDI surveillance hospital discharge surveys; vital statistics
Injuries attributed to UV light (<i>optional</i>)	1) Number of corneal burns (<i>optional</i>) 2) Number of other eye injuries (<i>optional</i>) 3) Incidence of cataracts (<i>optional</i>)	CDC: NHAMCS, NHDS
Intervention		
Public education (<i>optional</i>)	1) Proportion of adults who follow protective measures to prevent melanoma and skin cancer (<i>optional</i>) 2) Proportion of adolescents who follow protective measures to prevent melanoma and skin cancer (<i>optional</i>) 3) Number and type of sun protection messages issued to the public (<i>optional</i>) 4) Number of purchases of sun blocking products (<i>developmental</i>)	CDC: NHIS NWS States or local jurisdictions: health agencies Private sector: marketing agencies

V. Measures and Data Sources for Environmental Public Health Indicators

Toxics and Waste

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Hazards		
Chemical spills (<i>core</i>)	1) Number of chemical spills by type and location (<i>core</i>)	ASDR: HSEES DOT EPA States or local jurisdictions: environment, transportation, and agriculture agencies
Toxic contaminants in foods (<i>core</i>)	1) Levels of toxic contaminants in foods (<i>core</i>)	USDA (FDA): Total Diet Survey
Hazardous waste sites (<i>optional</i>)	1) Proportion of leaking underground storage facilities that have not been remediated (<i>optional</i>) 2) Proportion of identified Brownfield properties that have not been remediated (<i>optional</i>) 3) Tons of toxic substances and materials sold to general public (<i>optional</i>) 4) Proportion of population in close proximity to leaking underground storage facilities, Brownfield properties, and sites on the National Priority List and RCRA lists (<i>optional</i>) 5) Number of worker and community complaints about possible toxic exposures (<i>developmental</i>)	ATSDR CDC, NIOSH DOC EPA OSHA States or local jurisdictions: agriculture and environmental protection agencies, especially those with indicator projects
Exposures		
Biologic markers of human exposure to heavy metals (<i>optional</i>)	1) Blood and urine concentration level (95 th percentile) for lead, arsenic, cadmium, manganese, mercury (<i>optional</i>)	CDC: ABLES; NHANES; NRHEEC States or local jurisdictions: lead prevalence surveys
Biologic markers of human exposure to persistent chemicals (<i>optional</i>)	1) Serum concentration level (95 th percentile) for polychlorinated biphenyls (PCB), dioxins, furans (<i>optional</i>)	CDC: ABLES; NHANES; NRHEEC
Health Effects		
Possible child poisoning (<i>core</i>)	1) Consultations for child poisoning (<i>core</i>) 2) Emergency department visit for child poisoning (<i>core</i>)	AAPCC: TESS CDC: NHAMCS; NHDS; NVSS CPSC States or local jurisdictions: injury indicators surveillance; ME/Cs; vital statistics
Morbidity and mortality associated with toxic substances (<i>optional</i>)	1) Number of non-occupational poisonings (<i>optional</i>) 2) Number of deaths from non-occupational poisoning (<i>optional</i>) 3) Number of injuries resulting from chemical spills (<i>optional</i>)	AAPCC: TESS CDC: NHAMCS; NHDS; NVSS; NEISS; NIOSH CPSC States or local jurisdictions: CDI and injury indicators surveillance; health agencies, occupational health and safety divisions; ME/Cs; vital statistics

V. Measures and Data Sources for Environmental Public Health Indicators

Toxics and Waste

<i>Indicator</i>	<i>Suggested Measure</i>	<i>Potential Data Source</i>
Interventions		
Use of surveillance and warning systems (<i>optional</i>)	1) Number of jurisdictions that have surveillance systems for detecting methemoglobinemia and acute poisoning from lead, arsenic, cadmium, mercury, pesticides, and other chemicals (<i>optional</i>) 2) Number of fish consumption advisories (<i>optional</i>)	States or local jurisdictions: health, environmental protection, and natural resources agencies
Waste and toxic substances reduction (<i>optional</i>)	1) Proportion of solid waste diverted from disposal (<i>optional</i>) 2) Identified sites with completed exposure pathways (<i>optional</i>)	CDC: NHIS EPA States or local jurisdictions: health, environmental protection, and natural resources agencies
Public education (<i>developmental</i>)	1) Public awareness campaigns about toxic and hazardous household products (<i>developmental</i>) 2) Number of purchases of home safety and child-proofing devices (e.g., electrical outlet covers, cabinet locks, smoke detectors) (<i>developmental</i>)	Private sector: marketing agencies; solid waste disposal companies

V. Measures and Data Sources for Environmental Public Health Indicators

Water, Ambient

<i>Indicators</i>	<i>Suggested Measures</i>	<i>Potential Data Sources</i>
Hazards		
Monitored contaminants in ambient water (<i>core</i>)	1) Levels of contaminants monitored under CWA and state regulations and guidelines by type of water body (e.g., surface, recreational, marine) (<i>core</i>) 2) Proportion of marine and freshwater recreational waters that fail to meet water quality regulations and guidelines (<i>core</i>) 3) Proportion of treated recreational waters that fail to meet state and local standards for free chlorine levels by type of recreational water (swimming pools, water parks, play fountains) (<i>core</i>) 4) Number of health-related closure days for marine and freshwater recreational areas (<i>optional</i>) 5) Land-use patterns (<i>developmental</i>)	EPA: BEACH Program; CWA compliance data USDA USGS (NAWQA) States or local jurisdictions: public drinking water utilities; environmental protection and natural resources agencies; pool inspection program
Point-source discharges into ambient water (<i>core</i>)	1) Volume of point-source discharges by type of contaminant (permitted sanitary waste disposal, sewage overflows, unintentional discharges and spills) (<i>core</i>) 2) Levels of mercury, dioxin, PCB, other in recreational (fishing) water bodies (<i>developmental</i>)	EPA: BEACH program FDA
Contaminants in shellfish and sport and commercial fish (<i>core</i>)	1) Levels of fecal coliform and mercury in shellfish beds (<i>core</i>) 2) Levels of mercury, dioxin, and PCB in sport and commercial fish (<i>core</i>)	FDA States or local jurisdictions: shellfish and food safety programs in health and natural resources agencies
Exposures		
(None identified)		
Health Effects		
Outbreaks attributed to fish and shellfish consumption (<i>core</i>)	1) Number of outbreaks by source (fish, shellfish) and etiologic agent (biologic, toxic, other) (<i>core</i>)	CDC States or local jurisdictions: health agencies
Outbreaks attributed to ambient water contaminants (<i>core</i>)	1) Number of outbreaks by source (freshwater, marine, treated recreational water) and etiologic agent (biologic, toxic, other) (<i>core</i>)	CDC States or local jurisdictions: health agencies
Interventions		
Activity restrictions (<i>core</i>)	1) Number and type of health-based activity restrictions (<i>core</i>)	EPA: BEACH Program FDA States or local jurisdictions: shellfish and food safety programs in health, environmental protection, and natural resources agencies, especially those with indicator projects
Compliance with regulations and guidelines (<i>optional</i>)	1) Number of fines for noncompliance with CWA regulations or local guidelines (<i>optional</i>)	EPA
Public education (<i>optional</i>)	1) Public awareness campaigns about health hazards associated with on-lot wastewater treatment systems (<i>optional</i>)	States or local jurisdictions: health and environment agencies

V. Measures and Data Sources for Environmental Public Health Indicators

Water, Drinking

<i>Indicators</i>	<i>Suggested Measures</i>	<i>Potential Data Sources</i>
Hazards		
Monitored contaminants in drinking water (<i>core</i>)	1) Number and proportion of drinking water systems that fail to meet water quality regulations and guidelines (SDWA MCLs, CCLs, state lists) by type of water supply (<i>core</i>) 2) Measurements of SDWA MCLs, CCLs, and contaminants monitored under state regulations and guidelines by type of water supply (<i>core</i>) 3) Number of citations for noncompliance with local standards for free chlorine levels (<i>optional</i>)	AWWA EPA: SDWIS States or local jurisdictions: environmental protection agencies, especially those with indicator projects; Consumer Confidence Reports from local water utilities
Source water contamination (<i>optional</i>)	1) Number and type of point-source discharges into drinking water aquifers (<i>optional</i>) 2) Levels of naturally occurring toxicants (<i>optional</i>) 3) Levels and types of contamination of private water supplies (<i>developmental</i>)	EPA USGS States or local jurisdictions: environmental protection agencies, especially those with indicator projects
Exposures		
(None identified)		
Health Effects		
Methemoglobinemia (<i>core</i>)	1) Case of methemoglobinemia (<i>core</i>)	States or local jurisdictions: health agencies
Outbreaks attributed to drinking water (<i>core</i>)	1) Number by type of water supply (including bottled water) and etiologic agent (biologic, toxic, other) (<i>core</i>)	CDC States or local jurisdictions: health agencies
Interventions		
Implementation of sanitary surveys (<i>core</i>)	1) Number and proportion of drinking water systems in which a sanitary survey has been conducted within past 5 years (by type of water supply) (<i>core</i>)	EPA: SDWIS USGS: sewage tracer program
Compliance with operation and maintenance standards (<i>core</i>)	1) Fines for noncompliance with SDA regulations or local guidelines (<i>core</i>) 2) Citations for noncompliance with local water quality regulations or guidelines (<i>core</i>)	AWWA EPA States or local jurisdictions: health agencies; public water utilities
Boil-water advisories (<i>core</i>)	1) Number of boil water advisories by type of water supply (<i>core</i>)	States or local jurisdictions: health agencies; public water utilities
Source water protection programs (<i>optional</i>)	1) Proportion of wellheads covered by protection programs (<i>optional</i>) 2) Proportion of surface water supplies covered by watershed protection programs (<i>optional</i>)	AWWA EPA States or local jurisdictions: health agencies; public water utilities
Public education (<i>optional</i>)	1) Proportion of the population aware of availability and meaning of consumer confidence reports (<i>optional</i>)	States or local jurisdictions: health agencies; public water utilities

VI. Acronyms and Abbreviations

— A —

AAPCC	American Association of Poison Control Centers http://www.aapcc.org/
ABLES	Adult Blood Lead Epidemiology and Surveillance http://www.cdc.gov/niosh/ables.html
AIRS	Aerometric Information Retrieval System http://www.epa.gov/ttn/airs/
APRHB	Air Pollution and Respiratory Health Branch http://www.cdc.gov/nceh/airpollution/
ARC	American Red Cross http://www.americanredcross.org/
ASTHO	Association of State and Territorial Health Officials http://www.astho.org/
ATSDR	Agency for Toxic Substances and Disease Registry http://www.atsdr.cdc.gov/
AWWA	American Water Works Association http://www.awwa.org/

— B —

BEACH	Beaches Environmental Assessment and Coastal Health http://www.epa.gov/ost/beaches/2000/
BR	Bureau of Reclamation DOI http://www.usbr.gov/main/index.html
BRFSS	Behavioral Risk Factor Surveillance System http://www.cdc.gov/brfss

— C —

CB	Census Bureau http://www.census.gov/
CCL	contaminant candidate list http://www.epa.gov/safewater/ccl/ccl_fr.pdf
CCR	consumer confidence reports http://www.epa.gov/safewater/ccr/ccrfact.html
CDC	Centers for Disease Control and Prevention http://www.cdc.gov/
CDI	chronic disease indicator http://cdi.hmc.psu.edu/
CMS	Centers for Medicare and Medicaid Services http://cms.hhs.gov/
CSTE	Council of State and Territorial Epidemiologists http://www.cste.org/
CWA	Clean Water Act http://www.epa.gov/r5water/cwa.htm

VI. Acronyms and Abbreviations

— D —

DASH	Division of Adolescent and School Health http://www.cdc.gov/nccdphp/dash/
DOC	Department of Commerce http://www.commerce.gov/
DOD	Department of Defense http://www.dod.gov/
DOE	Department of Energy http://www.doe.gov/
DOI	Department of Interior http://www.doi.gov/
DOT	Department of Transportation http://www.dot.gov/

— E —

EEHS	Emergency and Environmental Health Services http://www.cdc.gov/nceh/divisions/eehs.htm
EHHE	Environmental Hazards and Health Effects http://www.cdc.gov/nceh/divisions/ehhe.htm
EHLs	Environmental Health Laboratory Sciences http://www.cdc.gov/nceh/dls/
EHSB	Environmental Health Services Branch http://www.cdc.gov/nceh/ehs/default.htm
EIA	Energy Information Administration Agency http://www.eia.doe.gov/
EPA	Environmental Protection Agency http://www.epa.gov/
EPCRA	Emergency Planning and Community Right-to-Know Act http://www4.law.cornell.edu/uscode/42/ch116.html
EPHTB	Environmental Public Health Tracking Branch http://www.cdc.gov/nceh/tracking/

— F —

FEMA	Federal Emergency Management Agency http://www.fema.gov/
FHA	Federal Highway Administration http://www.fhwa.dot.gov/
FQPA	Food Quality Protection Act http://www.epa.gov/opppsp1/fqpa/

VI. Acronyms and Abbreviations

— H —

HCFA	Health Care Financing Administration (now renamed the Centers for Medicare and Medicaid Services) http://cms.hhs.gov/
HMO	health maintenance organization http://cms.hhs.gov/glossary/default.asp?Letter=H&Language=English - Content
HSB	Health Studies Branch http://www.cdc.gov/nceh/hsb/
HSEES	Hazardous Substances Emergency Events Surveillance http://www.atsdr.cdc.gov/HS/HSEES/
HUD	Housing and Urban Development http://www.hud.gov/

— I —

II	injury indicator http://www.cste.org/pdf/files/SCREENInjuryIndicatorsReport.pdf
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— L —

LPPB	Lead Poisoning Prevention Branch http://www.cdc.gov/nceh/lead/lead.htm
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— M —

MACDP	Metropolitan Atlanta Congenital Defects Program http://www.cdc.gov/ncbddd/bd/bdsurv.htm
MADDSP	Metropolitan Atlanta Developmental Disabilities Surveillance Program http://www.cdc.gov/ncbddd/dd/ddsurv.htm - MADDS
MCL	maximum contaminant level http://www.epa.gov/safewater/mcl.html
ME/C	medical examiner or coroner http://www.cdc.gov/epo/dphsi/mecisp/index.htm

— N —

NAACCR	North American Association of Central Cancer Registries http://www.naaccr.org/
NAAQS	national ambient air quality standards http://www.epa.gov/air/data/info.html
NACCHO	National Association of County and City Health Officials http://www.naccho.org/
NASQAN	National Stream Quality Accounting Network http://water.usgs.gov/nasqan/

VI. Acronyms and Abbreviations

NAWQA	National Water Quality Assessment Program http://water.usgs.gov/nawqa/
NBDPN	National Birth Defects Prevention Network http://www.nbdpn.org/
NCBDDD	National Center on Birth Defects and Developmental Disability http://www.cdc.gov/ncbddd/
NCCDPHP	National Center for Chronic Disease Prevention and Health Promotion http://www.cdc.gov/nccdphp/
NCDC	National Climatic Data Centers http://lwf.ncdc.noaa.gov/oa/ncdc.html
NCEH	National Center for Environmental Health http://www.cdc.gov/nceh/
NCHS	National Center for Health Statistics http://www.cdc.gov/nchs
NCID	National Center for Infectious Diseases http://www.cdc.gov/ncidod/index.htm
NCIPC	National Center for Injury Control and Prevention http://www.cdc.gov/ncipc/
NCOD	National drinking water contaminant occurrence database http://www.epa.gov/ncod/
NEI	National Emissions Inventory http://www.epa.gov/ttn/chief/trends/index.html
NEISS	National Electronic Injury Surveillance System http://www.cdc.gov/ncipc/osp/data.htm
NHAMCS	National Hospital Ambulatory Medical Care Survey http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm
NHANES	National Health and Nutrition Examination Survey http://www.cdc.gov/nchs/nhanes.htm
NHDS	National Hospital Discharge Survey http://www.cdc.gov/nchs/about/major/hdasd/nhds.htm
NHIS	National Health Interview Survey http://www.cdc.gov/nchs/nhis.htm
NIEHS	National Institute of Environmental Health Sciences http://www.niehs.nih.gov/
NIOSH	National Institute for Occupational Safety and Health http://www.cdc.gov/niosh/homepage.html
NLM	National Library of Medicine http://www.nlm.nih.gov/
NMMAPS	National Morbidity, Mortality, and Air Pollution Study http://es.epa.gov/ncer_abstracts/centers/trc/hei/samet03.html
NOAA	National Oceanic and Atmospheric Administration http://www.noaa.gov/
NPCR	National Program of Cancer Registries http://www.cdc.gov/cancer/npcr/
NPSP	National Pesticide Synthesis Project http://water.wr.usgs.gov/pnsp/

VI. Acronyms and Abbreviations

NPTS	National Personal Transportation Survey http://www.fhwa.dot.gov/ohim/nptspage.htm
NRHEEC	National Report on Human Exposure to Environmental Contaminants http://www.cdc.gov/nceh/dls/report/ - Whatis
NSSL	National Severe Storms Laboratory http://www.nssl.noaa.gov/
NTI	National Toxics Inventory http://www.epa.gov/air/data/ntidb.html
NVSS	National Vital Statistics System http://www.cdc.gov/nchs/nvss.htm
NWIS	National Water Inventory System http://water.usgs.gov/realtime.html
NWS	National Weather Service http://www.nws.noaa.gov/
— O —	
OAQPS	Office of Air Quality and Performance Standards http://www.epa.gov/oar/oaqps/qa/monprog.html
OAR	Office of Air and Radiation http://www.epa.gov/oar/
OECD	Organisation for Economic Co-operation and Development http://www.oecd.org/EN/home/0,,EN-home-0-nodirectorate-no-no-no-0,FF.html
OI	occupational indicator http://www.cste.org/ps/1999/1999-env-05.htm
OPP	Office of Pesticide Programs http://www.epa.gov/pesticides/
ORIA	Office of Radiation and Indoor Air http://www.epa.gov/oar/oria.html
OSHA	Occupational Safety and Health Administration http://www.osha.gov/
— P —	
PDP	Pesticide Data Program http://www.ams.usda.gov/science/pdp/
PHF	Public Health Foundation http://www.phf.org/
PWSS	Public Water Supply Supervision http://www.epa.gov/safewater/pws/pwss.html
— S —	
SDWA	Safe Drinking Water Act http://www.epa.gov/safewater/sdwa/sdwa.html
SDWIS	Safe Drinking Water Information System

VI. Acronyms and Abbreviations

<http://www.epa.gov/safewater/sdwisfed/sdwis.htm>

SENSOR	Sentinel Event Notification System for Occupational Risk http://www.cdc.gov/niosh/W99appA.html - Sentinel Event Notification Systems for
SHPPS	School Health Policies and Programs Survey http://www.cdc.gov/nccdphp/dash/shpps/report_cards/index.htm
STATE	State Tobacco Activities Tracking and Evaluation http://www2.cdc.gov/nccdphp/osh/state/

— T —

TESS	Toxic Exposure Surveillance System http://www.aapcc.org/poison1.htm
TOXICS	Toxic Substances Hydrology Program http://toxics.usgs.gov/index.html
TRI	Toxic Release Inventory http://www.epa.gov/ebtpages/emerreporttoxicsreleaseinventorytri.html

— U —

UATP	Urban Air Toxics Program http://www.epa.gov/ttn/atw/urban/urbanpg.html
UN	United Nations http://www.un.org/
USDA	United States Department of Agriculture http://www.usda.gov/
USGS	United States Geological Survey http://www.usgs.gov/
UV	ultraviolet http://www.epa.gov/ebtpages/emerreporttoxicsreleaseinventorytri.html

— W —

WHO	World Health Organization http://www.who.int/en/
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— Y —

YRBSS	Youth Risk Behavior Surveillance System http://www.cdc.gov/nccdphp/dash/yrbs/index.htm
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VII. Potential Sources of Data and Information for Environmental Public Health Indicators

Federal agencies

Agency for Toxic Substances and Disease Registry (ATSDR)

<http://www.atsdr.cdc.gov/>

Hazardous Substances Emergency Events Surveillance (HSEES) system: Provides information about releases of hazardous substances that need to be cleaned up or neutralized according to federal, state, or local law, as well as threatened releases that result in a public health action such as an evacuation.

<http://www.atsdr.cdc.gov/HS/HSEES/>

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/>

Behavioral Risk Factor Surveillance System (BRFSS): Tracks health risk through use of telephone surveys.

<http://www.cdc.gov/brfss>

FoodNet: Provides a network for active surveillance of foodborne diseases and related epidemiologic studies.

<http://www.cdc.gov/foodnet/>

Metropolitan Atlanta Congenital Defects Program (MACDP): Monitors all major birth defects in metropolitan Atlanta, Georgia, and serves as the model for many state-based programs and as a resource for the development of uniform methods and approaches to birth defects surveillance.

<http://www.cdc.gov/ncbddd/bd/bdsurv.htm>

National Birth Defects Prevention Network (NBDPN): Maintains a national network of state and population-based programs for birth defects surveillance and research.

<http://www.nbdpn.org/>

National Program of Cancer Registries (NPCR): Establishes standards, model laws and regulations, computerized reporting and data processing systems; trains registry personnel; provides support for cancer prevention and control programs.

<http://www.cdc.gov/cancer/npcr/>

National Vital Statistics System (NVSS): Provides the nation's official vital statistics.

<http://www.cdc.gov/nchs/nvss.htm>

PulseNet: Provides a national network of public health laboratories that perform a DNA "fingerprinting" method on foodborne bacteria for disease surveillance.

<http://www.cdc.gov/pulsenet/>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

Centers for Disease Control and Prevention (CDC), continued

Registry of Toxic Effects of Chemical Substances (RTECS®): Contains information about the toxic effects of chemical substances, including drugs, food additives, preservatives, ores, pesticides, dyes, detergents, lubricants, soaps, plastics, extracts from plant and animal sources, plants or animals that are toxic by contact or ingestion, and industrial intermediates and waste products from production processes.

<http://www.cdc.gov/niosh/rtecs.html>

State Tobacco Activities Tracking and Evaluation (STATE): Summarizes data on tobacco use prevention and control.

<http://www2.cdc.gov/nccdphp/osh/state/>

Youth Risk Behavior Surveillance System (YRBSS): Tracks risky behaviors among youth.

<http://www.cdc.gov/nccdphp/dash/yrbs/index.htm>

Department of Commerce (DOC)

<http://www.commerce.gov/>

Census Bureau: Provides data about population, geography, and economics.

<http://www.census.gov/>

National Technical Information Service: Links to scientific and technical resources.

<http://www.scitechresources.gov/>

Department of Defense (DOD)

<http://www.dod.gov/>

Recruiting Offices: Links to the DOD recruiting sites.

<http://www.dod.gov/sites/r.html>

Department of Energy (DOE)

<http://www.energy.gov>

Energy Information Administration (EIA): Cites statistics by geography, sector, price, fuel, environment, forecast, and analyses.

<http://www.eia.doe.gov/>

Energy Data and Prices: Contains index of state, international, and national data on energy.

<http://www.energy.gov/dataandprices/index.html>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

Department of Transportation (DOT), Federal Highway Administration (FHA)

<http://www.fhwa.dot.gov/>

Electronic Reading Room: Links to publications, reports, and statistics.

<http://www.fhwa.dot.gov/pubstats.html>

Nationwide Personal Transportation Survey (NPTS): Catalogs daily personal travel in the United States.

<http://www.fhwa.dot.gov/ohim/nptspage.htm>

Environmental Protection Agency (EPA)

<http://www.epa.gov/>

EPA—Air

Aerometric Information Retrieval System (AIRS): Contains information about ambient air pollution.

<http://www.epa.gov/ttn/airs/>

Air Data: Provides an index of air-related topics.

<http://www.epa.gov/air/data/index.html>

AIR NOW: Provides air quality maps and ozone forecasts, publications, and consumer tips for reducing air pollution.

<http://www.epa.gov/airnow/>

Air Toxics: Contains information about air toxics regulations, assessments, programs, education, and partnerships.

<http://www.epa.gov/ttn/atw/>

Compliance Monitoring Data for Air: Provides information about three databases that contain compliance and permit data for regulated stationary sources; stores and tracks compliance information about owners and operators of asbestos demolition and renovation activities and memoranda issued by EPA on applicability and compliance issues associated with the New Source Performance Standards, National Emissions Standards for Hazardous Air Pollutants, and chlorofluorocarbons.

<http://www.epa.gov/compliance/planning/data/air/index.html>

Information Clearinghouse: Contains information about indoor air quality.

<http://www.epa.gov/iaq/iaqinfo.html>

National Air Quality and Emissions Trends Report: Contains information about criteria air pollutants.

<http://www.epa.gov/air/data/index.html>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

EPA—Air, continued

National Emissions Inventory (NEI): Characterizes emissions of criteria and hazardous air pollutants.

<http://www.epa.gov/ttn/chief/trends/index.html>

National Morbidity, Mortality, and Air Pollution Study (NMMAPS): Describes morbidity and mortality associated with air pollution in the United States based on a study conducted by the Health Effects Institute.

http://es.epa.gov/ncer_abstracts/centers/trc/hei/samet03.html

Office of Air and Radiation (OAR): Lists publications and reports about ambient air.

<http://www.epa.gov/oar/oarpubs.html>

Urban Air Toxics Program: Lists air toxics, source categories, and integrated strategies for reduction.

<http://www.epa.gov/ttn/atw/urban/urbanpg.html>

EPA—Miscellaneous

Compliance Monitoring Data: Provides access to data for air, hazardous waste, pesticides, toxics, and water.

<http://www.epa.gov/compliance/planning/data/index.html>

Databases and Software: Contains information about air, toxic substances, pesticides, solid waste, water, and “integrated media” (the relation between multiple environmental problems).

<http://www.epa.gov/epahome/dmedia.htm>

Information Resources Center (IRC): Provides access to EPA information services for environmental and related subjects of interest, including online searching of commercial databases, and focuses on environmental regulations, policy, planning, and administration.

<http://www.epa.gov/natlibra/hqirc/about.htm>

Environmental Monitoring for Public Access and Community Tracking (EMPACT): Indexes real-time environmental information for US cities.

<http://www.epa.gov/empact/index.htm>

Global Warming: Provides information about global warming impacts by state.

<http://www.epa.gov/globalwarming/index.html>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

EPA—Toxics

Compliance Monitoring Data for Toxics and Pesticides: Provides access to systems that track the amount of pesticides produced and compliance and enforcement activities.
<http://www.epa.gov/compliance/planning/data/toxics/index.html>

Integrated Risk Information System (IRIS): Contains information about health hazards posed by approximately 5,000 substances.
<http://www.epa.gov/iris/>

National Toxics Inventory (NTI): Provides a database of stationary and mobile sources that emit hazardous air pollutants in the 50 states, District of Columbia, Puerto Rico, and Virgin Islands.
<http://www.epa.gov/air/data/ntidb.html>

Office of Pesticide Programs, Health Effects Division: Registers and reviews environmental and human health information about pesticides.
<http://www.epa.gov/pesticides/about.htm>

Toxic Release Inventory/Emergency Planning and Community Right-To-Know Act (TRI/EPCRA): Lists approximately 600 designated chemicals that threaten human health and the environment. Authorized under EPCRA (1986), this system requires manufacturers to report releases of these chemicals to EPA and state governments.
<http://www.epa.gov/tri/>

EPA—Water

Beaches Environmental Assessment and Coastal Health (BEACH) Program: Focuses on improving public health and environmental protection programs for beachgoers and providing the public with information about the quality of beach water.
<http://www.epa.gov/ost/beaches/2000/>

Clean Water Act: Establishes the basic structure for regulating discharges of pollutants into U.S. waters.
<http://www.epa.gov/r5water/cwa.htm>

Compliance Monitoring Data for Water: Provides access to two information systems: the Permit Compliance System and the Safe Drinking Water Information System.
<http://www.epa.gov/compliance/planning/data/water/index.html>

Environmental Information Management System: Provides access to the data used to develop national maps for watershed indicators.
<http://oaspub.epa.gov/eims/eimsstart>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

EPA—Water, continued

National Drinking Water Contaminant Occurrence Database: Contains occurrence data from both Public Water Systems and other sources on physical, chemical, microbial and radiological contaminants.

<http://www.epa.gov/ncod/>

Office of Wetlands, Oceans, and Watersheds: Describes program information and introduces other relevant websites for statutes, publications, resource protection, maps, databases, and other topics.

<http://www.epa.gov/owow/>

Safe Drinking Water Act: Sets drinking water quality standards and oversees the states, localities, and water suppliers who implement those standards.

<http://www.epa.gov/safewater/sdwa/sdwa.html>

Safe Drinking Water Information System (SDWIS): Stores information needed to monitor U.S. public drinking water systems.

<http://www.epa.gov/ceisweb1/ceishome/ceisdocs/sdwis/sdwis-ex.htm>

Urban, Great Waters, and Regional Programs: Describes programs that characterize risks to human health and the environment from mercury, urban air toxics, and air pollution deposition in the Great Lakes.

<http://www.epa.gov/ttn/atw/riskinit.html>

Water Data and Maps: Includes information about data systems, databases, mapping, and water quality models.

<http://www.epa.gov/owow/data.html>

Water Science: Includes information about water quality criteria and standards, industrial water pollution controls, water quality tools, health advisories, training, guidance, and financial assistance.

<http://www.epa.gov/OST/>

Watershed Atlas: Catalogs geo-spatial displays and analyses of information important for watershed protection and restoration.

<http://www.epa.gov/wateratlas/geo/maplist.html>

Watershed Indicators Index: Provides a general overview of watershed indicators.

<http://www.epa.gov/iwi/iwi-overview.pdf>

Watershed Information Network: Provides national maps and fact sheets for all watershed indicators and candidate indicators through the Watershed Atlas.

<http://www.epa.gov/win/>

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Food and Drug Administration (FDA)

<http://www.fda.gov/>

Total Diet Survey: Measures dietary intake of food contaminants—such as pesticide residues, industrial chemicals, toxics, and radionuclides—and nutritional elements and vitamins.

<http://www.cfsan.fda.gov/~comm/tds-toc.html>

Federal Emergency Management Agency (FEMA)

<http://www.fema.gov/>

Environmental Program: Integrates resource considerations into disaster preparedness, mitigation, response, and recovery.

<http://www.fema.gov/mit/ep/envhome.htm>

Flood Hazard Mapping: Outlines specifications and procedures.

http://www.fema.gov/mit/tsd/mm_wip5g.htm

Mapping Sources and Data: Provides information about flood hazards and mapping resources. <http://www.fema.gov/mit/tsd/>

Miscellaneous: Links to sources for funding, related federal and state agencies, and legislation and laws.

<http://www.fema.gov/mit/ep/tools.htm>

Housing and Urban Development (HUD)

<http://www.hud.gov/>

Library: Contains an index of topics, including information about disaster relief, community environmental issues, and hazards from lead.

<http://www.hud.gov/library/index.cfm>

Data and Publications: Catalogs reports, publications, periodicals, and housing data.

<http://www.hud.gov/library/bookshelf03/index.cfm>

National Aeronautics and Space Administration (NASA)

<http://www.nasa.gov/>

Global Change Master Directory: Provides a directory of earth science data on agriculture, atmosphere, land surface, human dimensions, oceans, and other topics.

<http://globalchange.nasa.gov/>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

National Institute of Environmental Health Sciences (NIEHS)

<http://www.niehs.nih.gov/>

National Toxicology Program: Links to information, fact sheets, and health and safety information.

<http://ntp-server.niehs.nih.gov/>

National Library of Medicine (NLM)

<http://www.nlm.nih.gov/>

TOXLINE: Contains a collection of online information about drugs and other chemicals.

<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TOXLINE>

National Oceanic and Atmospheric Administration (NOAA)

<http://www.noaa.gov/>

National Environmental Satellite, Data, and Information Service (NESDIS): Provides information services and access to global environmental data from satellites and other sources and conducts research to promote, protect, and enhance the nation's economy, security, environment, and quality of life.

<http://www.nesdis.noaa.gov/>

National Weather Service (NWS): Provides access to weather data, forecasts, and warnings.

<http://www.nws.noaa.gov/>

National Climatic Data Centers (NCDC): Maintains an active archive of weather data, responds to data requests, and produces climate publications.

<http://lwf.ncdc.noaa.gov/oa/ncdc.html>

National Severe Storms Laboratory (NSSL): Investigates all aspects of severe weather and conducts research to improve severe weather warnings and forecasts.

<http://www.nssl.noaa.gov/>

Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/>

Statistics and Data: Provides access to inspection data, federal statistics, and the Bureau of Labor's statistics on workplace injuries, illnesses, and fatalities.

<http://www.osha.gov/oshs tats/index.html>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

United States Department of Agriculture (USDA)

<http://www.usda.gov/>

Economics and Statistics System: Contains information about food, land, water, conservation, and other topics.

<http://usda.mannlib.cornell.edu/>

National Agricultural Statistics Service (NASS): Links to state and federal publications and data.

<http://www.usda.gov/nass/>

Pesticide Data Program (PDP): Collects data on pesticide residues in food.

<http://www.ams.usda.gov/science/pdp/>

United States Geological Survey (USGS)

<http://www.usgs.gov/>

Environment and Human Health: Links to reports, publications, data, and fact sheets.

http://www.usgs.gov/themes/environment_human_health.html

National Stream Quality Accounting Network (NASQAN): Contains monitoring data from large U.S. rivers.

<http://water.usgs.gov/nasqan/>

National Water Quality Assessment Program (NAWQA): Provides data about water chemistry, hydrology, land use, stream habitat, and aquatic life for major river basins and aquifers.

<http://water.usgs.gov/nawqa/>

NAWQA Pesticide National Synthesis Project: Produces a long-term assessment of the status of and trends in the quality of the nation's water resources.

<http://water.wr.usgs.gov/pnsp/>

Toxic Substances Hydrology Program: Provides bibliographies and publications about toxic substances in agriculture and mining.

<http://toxics.usgs.gov/index.html>

Water Resources Data: Links to water data, publications, technical resources, programs, and local information.

<http://water.usgs.gov/>

VII. Potential Sources of Data and Information for Environmental Public Health Indicators

States and local jurisdictions

Note: States' data collection and reporting methods may differ, and some data may be collected but not reported.

Departments of Agriculture: Provides access to local services provided by the Farm Service Agency, Natural Resources Conservation Service, and Rural Development agencies and may provide information about land management practices, pesticides, pesticide alternatives, and water quality.

http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map

Environmental Protection and Natural Resources Agencies: Contains information about how state environmental agencies are organized and provides links to each state.

<http://www.sso.org/ecos/states.htm>

Medical Examiner and Coroner (ME/C) Offices: Provides contacts for each state and information about types of deaths investigated. Individual ME/C offices may provide information about specific deaths, including investigation, autopsy, and toxicology reports.

<http://www.cdc.gov/epo/dphsi/mecisp/index.htm>

Public Health Departments: Provides links to state health departments (scroll past birth data section).

<http://www.cdc.gov/nchs/about/major/natality/sites.htm>

Public Health Laboratories: Provides links to most state public health labs.

http://www.aphl.org/Public_Health_Labs/index.cfm

United States Geological Survey District Offices: Provides links to state offices.

http://interactive2.usgs.gov/contact_us/index.asp

Universities

Environment Databases: Provides access to a wide variety of online resources.

<http://www.ulib.iupui.edu/subjectareas/gov/dbenviro.html>

Environment, Health, and Other Government Statistical Documents: Provides a central reference and referral point for government information, political science, statistical data, and news.

<http://www.lib.umich.edu/govdocs/stats.html>

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Non-government organizations

American Legacy Foundation: Provides data about tobacco use and information about tobacco control programs.

<http://www.americanlegacy.org/>

American Waterworks Association: Provides information about local drinking water issues.

<http://www.awwa.org/>

North American Association of Central Cancer Registries: Provides links to standards and technical assistance documents as well as to cancer incidence data.

<http://www.naaccr.org/>